

TOSHIBA

TPC6102

TOSHIBA FIELD EFFECT TRANSISTOR SILICON P CHANNEL MOS TYPE(U-MOSII)

TENTATIVE

TPC6102

NOTE BOOK PC
PORTABLE EQUIPMENTS APPLICATIONS

- Low Drain - Source ON Resistance : $R_{DS(ON)} = \quad m\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = \quad S$ (Typ.)
- Low Leakage Current : $I_{DSS} = -10\mu A$ (Max.) ($V_{DS} = -30V$)
- Enhancement - Model : $V_{th} = -0.8 \sim -2.0V$ ($V_{DS} = -10V, I_D = -1mA$)

MAXIMUM RATINGS (Ta=25°C)

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|--|-------|-----------|----------|------|
| Drain - Source Voltage | | V_{DSS} | -30 | V |
| Drain - Gate Voltage ($R_{GS} = 20k\Omega$) | | V_{DGR} | -30 | V |
| Gate - Source Voltage | | V_{GSS} | ± 20 | V |
| Drain Current | DC | I_D | -4.5 | A |
| | Pulse | I_{DP} | -18 | A |
| Drain Power Dissipation(Ta=25°C) * | | P_D | 2.0 | W |
| Channel Temperature | | T_{ch} | 150 | °C |
| Storage Temperature Range | | T_{stg} | -55~150 | °C |

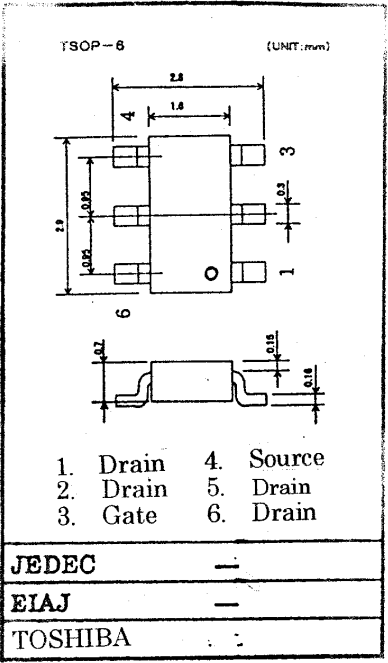
THERMAL CHARACTERISTICS

| CHARACTERISTICS | SYMBOL | MAX. | UNIT |
|--|----------------|------|------|
| Thermal Resistance, Chanel to Ambient* | $R_{th(ch-a)}$ | 62.5 | °C/W |

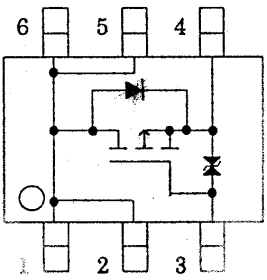
Note; *Drive operation ; Mount on glass epoxy board
(1inch²X0.8t) (t=5s)

THIS TRANSISTOR IS AN ELECTROSTATIC SENSITIVE DEVICE.
PLEASE HANDLE WITH CAUTION.

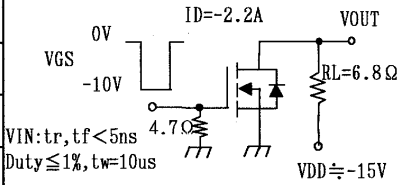
INDUSTRIAL APPLICATIONS
UNIT:mm



CIRCUIT CONFIGURATION



ELECTRICAL CHARACTERISTICS (Ta=25°C)

| CHARACTERISTICS | | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---------------|---------------|---|------|------|----------|---------|
| Gate Leakage Current | | I_{GSS} | $V_{GS}=\pm 16V, V_{DS}=0V$ | — | — | ± 10 | μA |
| Drain Cut-off Current | | I_{DSS} | $V_{DS}=-30V, V_{GS}=0V$ | — | — | -10 | μA |
| Drain-Source Breakdown Voltage | | $V_{(BR)DSS}$ | $I_D=-10mA, V_{GS}=0V$ | -30 | — | — | V |
| | | $V_{(BR)DSX}$ | $I_D=-10mA, V_{GS}=20V$ | -15 | — | — | V |
| Gate Threshold Voltage | | V_{th} | $V_{DS}=-10V, I_D=-1mA$ | -0.8 | — | -2.0 | V |
| Drain-Source ON Resistance | | $R_{DS(ON)}$ | $V_{GS}=-4.5V, I_D=-2.2A$ | — | 78 | 100 | mΩ |
| | | | $V_{GS}=-10V, I_D=-2.2A$ | — | 48 | 60 | |
| Forward Transfer Admittance | | $ Y_{fs} $ | $V_{DS}=-10V, I_D=-2.2A$ | 3.0 | 6.0 | — | S |
| Input Capacitance | | C_{iss} | $V_{DS}=-10V, V_{GS}=0V$ $f=1MHz$ | — | 500 | — | pF |
| Reverse Transfer Capacitance | | C_{rss} | | — | 110 | — | |
| Output Capacitance | | C_{oss} | | — | 150 | — | |
| Switching Time | Rise Time | t_r |  | — | — | — | ns |
| | Turn-on Time | t_{on} | | — | — | — | |
| | Fall Time | t_f | | — | — | — | |
| | Turn-off Time | t_{off} | | — | — | — | |
| Total Gate Charge (Gate-Source Plus Gate-Drain) | | Q_g | $V_{DD}\doteq -24V, V_{GS}=-10V$ $I_D=-4.5A$ | — | 11 | — | nC |
| Gate-Source Charge | | Q_{gs} | | — | 8.5 | — | |
| Gate-Drain(“Miller”)Charge | | Q_{gd} | | — | 2.5 | — | |

SOURCE - DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta=25°C)

| CHARACTERISTICS | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------------------------|-----------|-------------------------------|------|------|------|------|
| Continuous Drain Reverse Current | I_{DR} | — | — | — | -4.5 | A |
| Pulse Drain Reverse Current | I_{DRP} | — | — | — | -18 | A |
| Diode Forward Voltage | V_{DSF} | $I_{DR} = -4.5A, V_{GS} = 0V$ | — | — | 1.2 | V |